

chip 20 uses the contact interface 35 to communicate with the application layer 30 via path 55 and uses the external interface 45 to communicate with a card reader 80 via path 85. Communication path 85 can be a radio frequency signal, optical signal, wireless internet connection, or other communication method well known in the art and external interface 45 is capable of communicating by one or more of these methods.

The application layer 30 consists of an application services module 40 and a control module 50. The application services module 40 contains or has access to a set of context-based rules. The control module 50 processes the rules and context information to determine one or more virtual cards 21, 23, 25, 27, or 29 appropriate for a context.

A web interface 60 can be used to interact with a server 70, which can communicate with the application layer 30 via path 75. Path 75 can be a standard wireless telephony protocol (such as CDMA), a wireless internet connection, or some other means of wireless communication.

In an example of a consumer using a device 10 to make a purchase at a commercial establishment, the device 10 is brought into the proximity of a card reader 80 within the establishment. Context information is then sent via path 85 from the card reader 80 to the external interface 45 within the device 10. The external interface 45 passes the information to the microprocessor chip 20, which recognizes that a virtual card 21, 23, 25, 27, or 29 with which to make the purchase needs to be selected. The chip 20 sends a signal via path 55 to the control module 50 that a virtual card 21, 23, 25, 27, or 29 needs to be selected.

The control module 50 consults the application services module 40 for context-based rules related to the context information received from the card reader 80. The application services module 40 retrieves the rules either internally or from the server 70 and returns the rules to the control module 50. Using the rules and the context-based information, the control module 50 determines a category of card to use for the purchase and then determines the specific virtual card 21, 23, 25, 27, or 29 within the category. The control module 50 signals the chip 20 to activate the appropriate virtual card 21, 23, 25, 27, or 29 to send payment information to the card reader 80.

If there is not enough context information to select a virtual card 21, 23, 25, 27, or 29, an interface on the device 10 can offer the consumer a list of appropriate virtual cards. When the consumer manually selects a virtual card 21, 23, 25, 27, or 29 from this list, that card sends payment information, via external interface 45 and communication path 85, to the card reader 80. The control module 50 can remember the consumer's choice and use the choice to refine the context-based rules. That is, in a similar context in the future, the control module 50 might automatically select the same virtual card that the consumer chose manually or might offer that virtual card to the consumer as the preferred card for the context.

In an example of the device 10 being used in the manner of traditional RFID cards, the device 10 is brought into the proximity of a card reader 80. The card reader 80 emits a radio frequency signal 85 that is received by external interface 45 and passed on to the chip 20. The chip 20 consults the application layer 30 in the manner described above to determine an appropriate virtual card 21, 23, 25, 27, or 29 for the card reader 80. That virtual card is then activated and sends information to the card reader 80. The card reader 80 then processes the information appropriately, for example by opening a gate or by deducting a toll from an account.

The web interface 60 can be used to create or modify context-based rules. Rule-related information can be entered through the web interface 60 and stored on the server 70. The

rules can then be retrieved from the server 70 as needed by the application services module 40. Alternatively, the rules can be transferred from the server 70 to the application services module 40 and stored there. Faster response might be achieved if the rules reside in the application services module 40 rather than the server 70 but the device 10 might require a greater computing capacity in that case. In another alternative, the context-based rules are created or modified directly through an interface on the device 10 and the web interface 60 and the server 70 are not needed.

FIG. 2 is a flowchart illustrating an embodiment of a method for selecting a virtual card based on context. In box 210, a device containing several virtual cards is brought into the proximity of a card reader. In box 220, the device receives context information from the card reader. In other embodiments, context information might be inferred from the physical location of the device as determined by a Global Positioning System associated with the device. A set of context-based rules is consulted in box 250 to determine the appropriate virtual card or cards for the context.

Two options are possible in box 260. In one option, the context-based rules indicate that only one virtual card is appropriate for the context or that one virtual card is more appropriate than the others. In this case, the appropriate virtual card sends the appropriate information to the card reader in box 270. The device might ask a user for confirmation before the virtual card sends its information.

If the context-based rules indicate that more than one virtual card can be used in the context, the device displays a list of appropriate virtual cards in box 280. In box 290, the user selects the virtual card to be used. In box 300, the selected virtual card sends the appropriate information to the card reader. The device records information about the choice made by the user in box 310. In box 320, the context-based rules are updated based on the user's choice so that, in the future, a similar choice might be made automatically in a similar context.

While several embodiments have been provided in the present disclosure, it should be understood that the Context-Based Device Card Selection may be embodied in many other specific forms without departing from the spirit or scope of the present disclosure. The present examples are to be considered as illustrative and not restrictive, and the intention is not to be limited to the details given herein, but may be modified within the scope of the appended claims along with their full scope of equivalents. For example, the various elements or components may be combined or integrated in another system or certain features may be omitted, or not implemented.

Also, techniques, systems, subsystems and methods described and illustrated in the various embodiments as discrete or separate may be combined or integrated with other systems, modules, techniques, or methods without departing from the scope of the present disclosure. Other items shown as directly coupled or communicating with each other may be coupled through some interface or device, such that the items may no longer be considered directly coupled to each but may still be indirectly coupled and in communication with one another. Other examples of changes, substitutions, and alterations are ascertainable by one skilled in the art and could be made without departing from the spirit and scope disclosed herein.

What is claimed is:

1. A portable device for selecting virtual cards for a transaction based on a context, comprising:
 - a microprocessor chip comprising a plurality of virtual cards, wherein each of the virtual cards include transac-